

**L I N C O L N E L E C T R I C S Y S T E M**

May 12, 2003

EPA Docket Center (6102T)
Attention Docket Number OAR-2002-0053
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, Northwest
Washington, D.C. 20460

**RE: Lincoln Electric System's Comments on NSPS Subpart GG Direct Final Rule
Docket Number OAR-2002-0053**

Dear U.S. Environmental Protection Agency:

These comments are submitted by Lincoln Electric System (LES), a utility company headquartered in Lincoln, Nebraska, in response to the direct final rule for New Source Performance Standards (NSPS) for Stationary Gas Turbines (NSPS Subpart GG) published in the Federal Register on April 14, 2003 and assigned Docket Number OAR-2002-0053. Specifically, LES is commenting on the section of the direct final rule that addresses the requirement to reference emissions of nitrogen oxides (NO_x) to the International Organization for Standardization (ISO) standard day conditions of 288 degrees Kelvin, 60 percent relative humidity, and 101.3 kilopascals pressure.

In general, LES supports the majority of the amendments to the NSPS for Stationary Gas Turbines in the direct final rule. The majority of the amendments are intended to streamline the NO_x monitoring and testing requirements that are included as part of the NSPS for Stationary Gas Turbines when the requirements are similar or more stringent than the requirements regulating units in the Acid Rain Program. The amendments to the NO_x monitoring and testing requirements are in line with the current provisions allowed by the custom monitoring plans that the Region VII Environmental Protection Agency (EPA) has allowed for multiple units owned by LES that are subject to the requirements of the Acid Rain Program. In addition, LES supports the ISO data-correction exemption for NO_x emissions from lean pre-mix combustor turbines, units used in association with heat recovery steam generators (HRSGs) equipped with duct burners, and units with add-on emission controls. However, LES feels that other combustion-control strategies for NO_x on diffusion flame combustor turbines, including water-injection, should be included in the ISO data-correction exemption.

ISO data-correction for NO_x was required in the original NSPS for Stationary Gas Turbines to account for the impacts of ambient air conditions on NO_x emissions for older diffusion flame combustion turbines with no additional add-on controls. At the time the original standard was developed, control of NO_x emissions using water-injection was considered the best NO_x emission

control system. Other dry combustion controls and add-on controls for NO_x had not been developed and tested to be as effective as water-injection. Using water-injection, the original data indicated that gas turbines firing gaseous fuels typically had controlled NO_x emissions in the range of 15 to 50 ppm while gas turbines firing distillate fuels typically had controlled NO_x emissions in the range of 25 to 60 ppm. The NO_x emission standard of 75 ppm at ISO standard ambient conditions that is contained in the original rule was based on this emission data while still allowing for some uncertainty in the limited database.¹

Over time lean pre-mix combustion turbines and add-on controls have replaced water-injection as the predominant technology for NO_x control. However, even modern units using only water-injection have NO_x emissions that are well below the NSPS for Stationary Gas Turbines NO_x emission limit of 75 ppm at ISO standard ambient conditions. This includes NO_x emissions of 25 ppm or less for natural gas combustion and 42 ppm or less for distillate fuel combustion. Since, in all cases, controlled NO_x emissions, including NO_x controlled by water-injection are much less than the standard of 75 ppm at ISO standard ambient conditions, and correcting measured NO_x values to account for the ambient effects on NO_x will not make a significant difference in the NO_x emissions, little value is added by requiring the ISO data-correction. Thus, the ISO data-correction exemption as it is presented in the direct final rule for lean pre-mix units and units with add-on controls should also include diffusion flame units using water-injection to control NO_x.

LES also wishes to add comments to the rationale presented by the Gas Turbine Association (GTA) for the NO_x ISO data-correction exemption for lean pre-mix units, as the rationale relates to the exemption for diffusion flame units using water-injection to control NO_x emissions. Both lean pre-mix combustion turbines and diffusion flame combustion turbines using water-injection control NO_x emissions by controlling the combustion flame temperature. The GTA has indicated that the ambient air parameters that produce measurable changes in combustor conditions to affect thermally generated NO_x via the Zeldovich mechanism do not exist, exactly, in a lean pre-mixed combustor. Therefore, analytical corrections to the NO_x concentration using temperature, pressure, and humidity calculations are not warranted.² Since the principle strategy behind reducing NO_x emissions by controlling the combustion flame temperature is the same for lean pre-mix combustion turbines as it is for diffusion flame combustion turbines with water-injection at the combustion flame, the ISO data-correction should be applied or not applied similarly for the two types of units. In both cases, since the NO_x emissions are well below the NSPS for Stationary Gas Turbines NO_x emission limit of 75 ppm at ISO standard ambient conditions, the requirement to correct measured data to ISO standard ambient conditions has already been stated to have little, if any, significance.

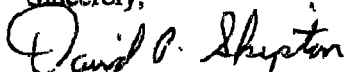
¹ Federal Register, Vol. 42, No. 191 - Monday, October 3, 1977

² Letter dated May 30, 2002 from Mr. Jeff Abboud of the GTA to Mr. Roy Sims of the U.S. EPA

U.S. Environmental Protection Agency - Page 3
May 12, 2003

In conclusion, LES wishes that the ISO data-correction exemption as it is applied in the direct final rule to lean pre-mix combustor turbines, units used in association with HRSGs equipped with duct burners, and units with add-on emission controls also be specifically included to apply to diffusion flame units using water-injection.

Sincerely,



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C: ✓ Mr. Jaime Pagan
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